4 pages Ex. 5 deliberative atty-client, WP, Ex. 7(a)

4 pages Ex. 5 deliberative atty-client, WP, Ex. 7(a)

4 pages Ex. 5 deliberative atty-client, WP, Ex. 7(a)

4 pages Ex. 5 deliberative atty-client, WP, Ex. 7(a)

Attachment 1

Spike Calculations and Documentation
November 19, 2009 – Dave Klarich, Veolia

INCINERATOR TESTING - 2008 7/31/08

MERCURY - HVM

SPIKE: Mercuric nitrate monohydrate [$Hg(NO_3)_2 \cdot H_2O$] in solution

WASTE SOLIDS: Zexel solidified sludge with Mercury at 1 ppm

No. 2 and No. 3 Incinerators

TARGETS: 0.00158 pounds Mercury/hour
40 solid charges/hour; 1 spike vial/charge

$40\ ^{charges}/_{hr} \times 15\ ^{lb\ Zexel}/_{charge} \times \frac{1\ Hg}{1{,}000{,}000} = 0.0006\ ^{lb\ Hg}/_{hr}$

$0.00158 - 0.0006 \Rightarrow 0.00098\ ^{lb\ Hg}/_{hr}$ From spike vials @ 710 ppm Mercury

$0.00098\ ^{lb\ Hg}/_{hr} \div 40\ ^{vial}/_{hr} \times \frac{454\ g}{lb} = 0.01112\ ^{g\ Hg}/_{vial}$

$0.01112\ ^{g\ Hg}/_{vial} \div \frac{710\ Hg}{1{,}000{,}000} = 15.67\ ^{g}/_{vial} \Rightarrow 14\ ^{ml}/_{vial}$ [0.00994 $^{g\ Hg}/_{vial}$]

No. 4 Incinerator

TARGETS: 0.025 pounds Mercury/hour
40 solid charges/hour; 1 spike vial/charge
5000 pounds bulk solids/hour [50% Zexel]
1000 pounds sludge/hour @ 1 ppm mercury

$40\ ^{charges}/_{hr} \times 15\ ^{lb\ Zexel}/_{charge} \times \frac{1\ Hg}{1{,}000{,}000} = 0.0006\ ^{lb\ Hg}/_{hr}$ in charge solids

$5000\ ^{lb\ bulk}/_{hr} \times 50\% \times \frac{1\ Hg}{1{,}000{,}000} = 0.0025\ ^{lb\ Hg}/_{hr}$ in bulk solids

$1000\ ^{lb\ sludge}/_{hr} \times \frac{1\ Hg}{1{,}000{,}000} = 0.001\ ^{lb\ Hg}/_{hr}$ in sludge

$0.025 - (0.0006 + 0.0025 + 0.001) \Rightarrow 0.0209\ ^{lb\ Hg}/_{hr}$ From spike vials @ 1.05% Mercury

$0.0209\ ^{lb\ Hg}/_{hr} \div 40\ ^{vial}/_{hr} \times \frac{454\ g}{lb} = 0.2372\ ^{g\ Hg}/_{vial}$

$0.2372\ ^{g\ Hg}/_{vial} \div 1.05\%\ Hg = 22.6\ ^{g}/_{vial} \Rightarrow 23\ ^{ml}/_{vial}$

For 1.04% Mercury solution: $0.2372 \div 1.04\% = 22.8 \Rightarrow 23\ ^{ml}/_{vial}$

For 1.1% Mercury solution: $0.2372 \div 1.1\% = 21.6 \Rightarrow 22\ ^{ml}/_{vial}$

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Product Specification

Catalog Number:	14497
Product Name:	Mercury(II) nitrate hydrate, ACS, 98.0% min
Alternate Name:	None
Structure:	$Hg(NO_3)_2 \cdot xH_2O$ (x = 1 - 2)
Chemical Abstract No:	7783-34-8
EINECS:	233-886-4
TSCA:	Yes
Formula Weight:	324.60 anhy.

Technical Data (Literature Values)

Density:	4.39 g/mL	**Boiling point:**	No data found
Melting Point:	79 °C	**Flash point:**	No data found

Specification (maximum allowed)

Residue after reduction:	0.01%	**Chloride (Cl):**	0.002%
Sulfate (SO_4):	0.002%	**Iron (Fe):**	0.001%

$Hg_2(NO_3)_2 \cdot H_2O$ or $Hg_2(NO_3)_2 \cdot 2H_2O$ assay: 98.0% min.

Prepared by: Gregory Harris
Technical Service
May 16, 2008

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ACCREDITED IN ACCORDANCE WITH nelac

Laboratory Results

Veolia Environmental Services
#7 Mobile Avenue

Sauget, IL 62201
Attn : Mr. Trey Formby

Date Received : 08/01/08 13:49
Report Date : 08/01/08
Customer # : 205130
P.O. Number : P2008-02
Facility :

Sample No: **08088017-1** Collect Date **08/01/08 00:01**
Client ID : **080108 N** Site : Locator :

Parameter	Qualifier	Result	Analysis Date	Analyst
EPA 245.1 Mercury		710 ppm	08/01/08 12:30	WPS

No. 2/3 Incin.

ACCREDITATIONS

NELAC Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100253.

Certified by: Barbara G. Pandolfo
Barbara G. Pandolfo, Project Manager

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Laboratory Results

Veolia Environmental Services
#7 Mobile Avenue

Sauget, IL 62201
Attn : Mr. Trey Formby

Date Received : 08/06/08 09:00
Report Date : 08/07/08
Customer # : 205130
P.O. Number : P2008-2
Facility :

Sample No: **08088118-1** Collect Date **08/06/08 00:01**
Client ID : **080608J** Site : **STL** Locator :

Parameter	Qualifier	Result	Analysis Date	Analyst
EPA 245.1				
Mercury		1.02 %	08/07/08 12:55	WPS

Certified by: Barbara G. Pandolfo
Barbara G. Pandolfo, Project Manager

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Laboratory Results

Veolia Environmental Services
#7 Mobile Avenue

Sauget, IL 62201
Attn : Mr. Trey Formby

Date Received : 08/05/08 17:00
Report Date : 08/07/08
Customer # : 205130
P.O. Number : P2008-2
Facility :

Sample No: **08088078-1** Collect Date **08/05/08 00:01**
Client ID : **080508C** Site : **STL** Locator :

Parameter	Qualifier	Result	Analysis Date	Analyst
EPA 245.1				
Mercury		10800 ppm	08/06/08 16:20	WPS

Sample No: **08088078-2** Collect Date **08/05/08 00:01**
Client ID : **080508B** Site : **STL** Locator :

Parameter	Qualifier	Result	Analysis Date	Analyst
SW-846 3050M				
Sample Preparation			08/06/08 11:00	JS
SW-846 6010B R2.0				
Arsenic		280 mg/kg	08/06/08 15:59	WPS
Beryllium	<	0.2 mg/kg	08/06/08 15:59	WPS
Cadmium		2.4 mg/kg	08/06/08 15:59	WPS
Chromium		8.9 mg/kg	08/06/08 15:59	WPS
Lead		27 mg/kg	08/06/08 15:59	WPS
SW-846 7470A R1.0				
Mercury		1 mg/kg	08/06/08 16:20	WPS

NOT Hg SPIKE MATERIAL

Sample No: **08088078-3** Collect Date **08/05/08 00:01**
Client ID : **285270** Site : **STL** Locator :

Parameter	Qualifier	Result	Analysis Date	Analyst
SW-846 3050M				
Sample Preparation			08/06/08 11:00	JS
SW-846 6010B R2.0				
Arsenic		4.5 mg/kg	08/06/08 16:02	WPS
Beryllium	<	0.2 mg/kg	08/06/08 16:02	WPS
Cadmium		1.1 mg/kg	08/06/08 16:02	WPS
Chromium		1.3 mg/kg	08/06/08 16:02	WPS
Lead		2.1 mg/kg	08/06/08 16:02	WPS
SW-846 7470A R1.0				
Mercury		1.4 mg/l	08/06/08 16:20	WPS

NOT Hg SPIKE MATERIAL

Samp# 08088118-1 1.02%
Samp# 08088078-1 1.08%
ave = 1.05%

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Laboratory Results

Veolia Environmental Services
#7 Mobile Avenue

Sauget, IL 62201
Attn : Mr. Trey Formby

Date Received : 08/05/08 17:00
Report Date : 08/07/08
Customer # : 205130
P.O. Number : P2008-2
Facility :

Sample No: **08088078-4** Collect Date **08/05/08 00:01**
Client ID : **080508A** Site : **STL** Locator :

NOT Hg
SPIKE MATERIAL

Parameter	Qualifier	Result	Analysis Date	Analyst
ASTM D2974				
Ash		100 % w/w	08/06/08 12:00	DM
SW-846 3050M				
Sample Preparation			08/06/08 11:00	JS
SW-846 6010B R2.0				
Arsenic	<	3 mg/kg	08/06/08 16:06	WPS
Beryllium	<	0.2 mg/kg	08/06/08 16:06	WPS
Cadmium	<	0.4 mg/kg	08/06/08 16:06	WPS
Chromium		0.8 mg/kg	08/06/08 16:06	WPS
Lead	<	2 mg/kg	08/06/08 16:06	WPS
SW-846 7471A R1.0				
Mercury	<	0.1 mg/kg	08/06/08 16:20	WPS

Certified by: Barbara G. Pandolfo
Barbara G. Pandolfo, Project Manager

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Laboratory Results

Veolia Environmental Services
#7 Mobile Avenue

Sauget, IL 62201
Attn : Mr. Trey Formby

Date Received : 08/11/08 13:13
Report Date : 08/12/08
Customer # : 205130
P.O. Number :
Facility :

Sample No: **08088191-1** Collect Date **08/10/08 00:01**
Client ID : **081108 I** Site : **STL** Locator :

Parameter	Qualifier	Result	Analysis Date	Analyst
EPA 245.1				
Mercury		1.03 %	08/12/08 11:55	WPS

Sample No: **08088191-2** Collect Date **08/10/08 00:01**
Client ID : **081108 J** Site : **STL** Locator :

Parameter	Qualifier	Result	Analysis Date	Analyst
EPA 245.1				
Mercury		1.04 %	08/12/08 11:55	WPS

No. 4 Jar

Certified by: Barbara G. Pandolfo
Barbara G. Pandolfo, Project Manager

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Laboratory Results

Veolia Environmental Services
#7 Mobile Avenue

Sauget, IL 62201
Attn : Mr. Trey Formby

Date Received : 08/22/08 08:00
Report Date : 08/22/08
Customer # : 205130
P.O. Number : P2008-2
Facility :

Sample No: **08088396-1** Collect Date **08/21/08 00:01**
Client ID : **082108D** Batch 3 Site : **BATCH 3** Locator :

Parameter	2101-60-22	Qualifier	Result	Analysis Date	Analyst
EPA 245.1 Mercury			1.1 %	08/22/08 13:00	WPS

Sample No: **08088396-2** Collect Date **08/21/08 00:01**
Client ID : **082108E** Batch 3 Site : **BATCH 3** Locator :

Parameter	Qualifier	Result	Analysis Date	Analyst
EPA 245.1 Mercury		1.1 %	08/22/08 13:00	WPS

Sample No: **08088396-3** Collect Date **08/21/08 00:01**
Client ID : **082108F** Batch 4 Site : **BATCH 4** Locator :
2101-60-25

Parameter	Qualifier	Result	Analysis Date	Analyst
EPA 245.1 Mercury		1.1 %	08/22/08 13:00	WPS

Sample No: **08088396-4** Collect Date **08/21/08 00:01**
Client ID : **082108G** Batch 4 Site : **BATCH 4** Locator :

Parameter	Qualifier	Result	Analysis Date	Analyst
EPA 245.1 Mercury		1.1 %	08/22/08 13:00	WPS

Mercury solution spike vials

1-700 : 14 ml @ 710 ppm

701-970 : 23 ml @ 1.05%

1101-1193 : 23 ml @ 1.04%

1201-1298 : 22 ml @ 1.17%

CHARGE LOGS

No. 2 - 3 runs

No. 3 - 3 runs

No. 4 - 4 runs

MERCURY NITRATE SPIKE VIALS - Target Volume: 14 milliliters

Date 8/2/08

Personnel Ray Hasty
Sarah Linhart

Shift 1st Shift - ?

Pump calibrated checked =14ml

VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)
1	14	26	14	51	14	76	14
2	14	27	14	52	14	77	14
3	14	28	14	53	14	78	14
4	14	29	14	54	14	79	14
5	14	30	14	55	14	80	14
6	14	31	14	56	14	81	14
7	14	32	14	57	14	82	14
8	14	33	14	58	14	83	14
9	14	34	14	59	14	84	14
10	14	35	14	60	14	85	14
11	14	36	14	61	14	86	14
12	14	37	14	62	14	87	14
13	14	38	14	63	14	88	14
14	14	39	14	64	14	89	14
15	14	40	14	65	14	90	14
16	14	41	14	66	14	91	14
17	14	42	14	67	14	92	14
18	14	43	14	68	14	93	14
19	14	44	14	69	14	94	14
20	14	45	14	70	14	95	14
21	14	46	14	71	14	96	14
22	14	47	14	72	14	97	14
23	14	48	14	73	14	98	14
24	14	49	14	74	14	99	14
25	14	50	14	75	14	100	14

MERCURY NITRATE SPIKE VIALS - Target Volume: 14 milliliters

Date 8/2/08

Personnel Ray Hasty
Sarah Linhart

Shift 1ST Shift

Pump calibrated Checked =14ml

VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)
101	14	126	14	151	14	176	14
102	14	127	14	152	14	177	14
103	14	128	14	153	14	178	14
104	14	129	14	154	14	179	14
105	14	130	14	155	14	180	14
106	14	131	14	156	14	181	14
107	14	132	14	157	14	182	14
108	14	133	14	158	14	183	14
109	14	134	14	159	14	184	14
110	14	135	14	160	14	185	14
111	14	136	14	161	14	186	14
112	14	137	14	162	14	187	14
113	14	138	14	163	14	188	14
114	14	139	14	164	14	189	14
115	14	140	14	165	14	190	14
116	14	141	14	166	14	191	14
117	14	142	14	167	14	192	14
118	14	143	14	168	14	193	14
119	14	144	14	169	14	194	14
120	14	145	14	170	14	195	14
121	14	146	14	171	14	196	14
122	14	147	14	172	14	197	14
123	14	148	14	173	14	198	14
124	14	149	14	174	14	199	14
125	14	150	14	175	14	200	14

MERCURY NITRATE SPIKE VIALS - Target Volume: 14 milliliters

Date 8/2/08

Personnel Ray Hasty
Sarah Linhart

Shift 1st Shift

Pump calibrated Checked = 14 ml

VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)
201	14	226	14	251	14	276	14
202	14	227	14	252	14	277	14
203	14	228	14	253	14	278	14
204	14	229	14	254	14	279	14
205	14	230	14	255	14	280	14
206	14	231	14	256	14	281	14
207	14	232	14	257	14	282	14
208	14	233	14	258	14	283	14
209	14	234	14	259	14	284	14
210	14	235	14	260	14	285	14
211	14	236	14	261	14	286	14
212	14	237	14	262	14	287	14
213	14	238	14	263	14	288	14
214	14	239	14	264	14	289	14
215	14	240	14	265	14	290	14
216	14	241	14	266	14	291	14
217	14	242	14	267	14	292	14
218	14	243	14	268	14	293	14
219	14	244	14	269	14	294	14
220	14	245	14	270	14	295	14
221	14	246	14	271	14	296	14
222	14	247	14	272	14	297	14
223	14	248	14	273	14	298	14
224	14	249	14	274	14	299	14
225	14	250	14	275	14	300	14

MERCURY NITRATE SPIKE VIALS - Target Volume: 14 milliliters

Date 8/2/08 - 8/4/08

Personnel Ray Hasty
Sarah Linhart (8/2/08) Trey Formby (8/4/08)

Shift 1st Shift

Pump calibrated Checked =14ml

VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)
301	14	326	14	351	14	376	14
302	14	327	14	352	14	377	14
303	14	328	14	353	14	378	14
304	14	329	14	354	14	379	14
305	14	330	14	355	14	380	14
306	14	331	14	356	14	381	14
307	14	332	14	357	14	382	14
308	14	333	14	358	14	383	14
309	14	334	14	359	14	384	14
310	14	335	14	360	14	385	14
311	14	336	14	361	14	386	14
312	14	337	14	362	14	387	14
313	14	338	14	363	14	388	14
314	14	339	14	364	14	389	14
315	14	340	14	365	14	390	14
316	14	341	14	366	14	391	14
317	14	342	14	367	14	392	14
318	14	343	14	368	14	393	14
319	14	344	14	369	14	394	14
320	14	345	14	370	14	395	14
321	14	346	14	371	14	396	14
322	14	347	14	372	14	397	14
323	14	348	14	373	14	398	14
324	14	349	14	374	14	399	14
325	14	350	14	375	14	400	14

MERCURY NITRATE SPIKE VIALS - Target Volume: 14 milliliters

Date 8/4/08

Personnel Ray Hasty
Trey Formby

Shift 1ST Shift

Pump calibrated Checked =14ml/s

VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)
401	14	426	14	451	14	476	14
402	14	427	14	452	14	477	14
403	14	428	14	453	14	478	14
404	14	429	14	454	14	479	14
405	14	430	14	455	14	480	14
406	14	431	14	456	14	481	14
407	14	432	14	457	14	482	14
408	14	433	14	458	14	483	14
409	14	434	14	459	14	484	14
410	14	435	14	460	14	485	14
411	14	436	14	461	14	486	14
412	14	437	14	462	14	487	14
413	14	438	14	463	14	488	14
414	14	439	14	464	14	489	14
415	14	440	14	465	14	490	14
416	14	441	14	466	14	491	14
417	14	442	14	467	14	492	14
418	14	443	14	468	14	493	14
419	14	444	14	469	14	494	14
420	14	445	14	470	14	495	14
421	14	446	14	471	14	496	14
422	14	447	14	472	14	497	14
423	14	448	14	473	14	498	14
424	14	449	14	474	14	499	14
425	14	450	14	475	14	500	14

MERCURY NITRATE SPIKE VIALS - Target Volume: 14 milliliters

Date 8/4/08

Personnel Ray Hasty
Trey Formby

Shift 1ST Shift

Pump calibrated Clocked =14mls

VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)
501	14	526	14	551	14	576	14
502	14	527	14	552	14	577	14
503	14	528	14	553	14	578	14
504	14	529	14	554	14	579	14
505	14	530	14	555	14	580	14
506	14	531	14	556	14	581	14
507	14	532	14	557	14	582	14
508	14	533	14	558	14	583	14
509	14	534	14	559	14	584	14
510	14	535	14	560	14	585	14
511	14	536	14	561	14	586	14
512	14	537	14	562	14	587	14
513	14	538	14	563	14	588	14
514	14	539	14	564	14	589	14
515	14	540	14	565	14	590	14
516	14	541	14	566	14	591	14
517	14	542	14	567	14	592	14
518	14	543	14	568	14	593	14
519	14	544	14	569	14	594	14
520	14	545	14	570	14	595	14
521	14	546	14	571	14	596	14
522	14	547	14	572	14	597	14
523	14	548	14	573	14	598	14
524	14	549	14	574	14	599	14
525	14	550	14	575	14	600	14

MERCURY NITRATE SPIKE VIALS - Target Volume: 14 milliliters

Date 8/4/08

Personnel Ray Hasty
Trey Formby

Shift 1st Shift

Pump calibrated Checked =14.15

VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)
601	14	626	14	651	14	676	14
602	14	627	14	652	14	677	14
603	14	628	14	653	14	678	14
604	14	629	14	654	14	679	14
605	14	630	14	655	14	680	14
606	14	631	14	656	14	681	14
607	14	632	14	657	14	682	14
608	14	633	14	658	14	683	14
609	14	634	14	659	14	684	14
610	14	635	14	660	14	685	14
611	14	636	14	661	14	686	14
612	14	637	14	662	14	687	14
613	14	638	14	663	14	688	14
614	14	639	14	664	14	689	14
615	14	640	14	665	14	690	14
616	14	641	14	666	14	691	14
617	14	642	14	667	14	692	14
618	14	643	14	668	14	693	14
619	14	644	14	669	14	694	14
620	14	645	14	670	14	695	14
621	14	646	14	671	14	696	14
622	14	647	14	672	14	697	14
623	14	648	14	673	14	698	14
624	14	649	14	674	14	699	14
625	14	650	14	675	14	700	14

1.05% Hg

23

MERCURY NITRATE SPIKE VIALS - Target Volume: ~~14~~ milliliters

Date 8-12-08

Personnel TD

FHF

Shift N/A

Pump calibrated FHF yes

VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)
701	23	726	23	751	23	776	23
702	23	727	23	752	23	777	23
703	23	728	23	753	23	778	23
704	23	729	23	754	23	779	23
705	23	730	23	755	23	780	23
706	23	731	23	756	23	781	23
707	23	732	23	757	23	782	23
708	23	733	23	758	23	783	23
709	23	734	23	759	23	784	23
710	23	735	23	760	23	785	23
711	23	736	23	761	23	786	23
712	23	737	23	762	23	787	23
713	23	738	23	763	23	788	23
714	23	739	23	764	23	789	23
715	23	740	23	765	23	790	23
716	23	741	23	766	23	791	23
717	23	742	23	767	23	792	23
718	23	743	23	768	23	793	23
719	23	744	23	769	23	794	23
720	23	745	23	770	23	795	23
721	23	746	23	771	23	796	23
722	23	747	23	772	23	797	23
723	23	748	23	773	23	798	23
724	23	749	23	774	23	799	23
725	23	750	23	775	23	800	23

1.05% Hg

23

MERCURY NITRATE SPIKE VIALS - Target Volume: ~~14~~ milliliters

Date 8-12-08

Personnel TD

FHF

Shift N/A

Pump calibrated FHF yes

VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)
801	23	826	23	851	23	876	23
802	23	827	23	852	23	877	23
803	23	828	23	853	23	878	23
804	23	829	23	854	23	879	23
805	23	830	23	855	23	880	23
806	23	831	23	856	23	881	23
807	23	832	23	857	23	882	23
808	23	833	23	858	23	883	23
809	23	834	23	859	23	884	23
810	23	835	23	860	23	885	23
811	23	836	23	861	23	886	23
812	23	837	23	862	23	887	23
813	23	838	23	863	23	888	23
814	23	839	23	864	23	889	23
815	23	840	23	865	23	890	23
816	23	841	23	866	23	891	23
817	23	842	23	867	23	892	23
818	23	843	23	868	23	893	23
819	23	844	23	869	23	894	23
820	23	845	23	870	23	895	23
821	23	846	23	871	23	896	23
822	23	847	23	872	23	897	23
823	23	848	23	873	23	898	23
824	23	849	23	874	23	899	23
825	23	850	23	875	23	900	23

1.0578 Hg
23

MERCURY NITRATE SPIKE VIALS - Target Volume: ~~14~~ milliliters

Date 8.12-08

Personnel TD
FHF

Shift FHF

Pump calibrated FHF yes

VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)
901	23	926	23	951	23	976	
902	23	927	23	952	23	977	
903	23	928	23	953	23	978	
904	23	929	23	954	23	979	
905	23	930	23	955	23	980	
906	23	931	23	956	23	981	
907	23	932	23	957	23	982	
908	23	933	23	958	23	983	
909	23	934	23	959	23	984	
910	23	935	23	960	23	985	
911	23	936	23	961	23	986	
912	23	937	23	962	23	987	
913	23	938	23	963	23	988	
914	23	939	23	964	23	989	
915	23	940	23	965	23	990	
916	23	941	23	966	23	991	
917	23	942	23	967	23	992	
918	23	943	23	968	23	993	
919	23	944	23	969	23	994	
920	23	945	23	970	23	995	
921	23	946	23	971		996	
922	23	947	23	972		997	
923	23	948	23	973		998	
924	23	949	23	974		999	
925	23	950	23	975		1000	

1101-1193

High Mercury Solution
Reagent # 2101-60-13
Vial prep 8/20/08 FHF / JS

MERCURY NITRATE SPIKE VIALS - Target Volume: 23 milliliters

Date 8-20-08

Personnel Ted Formby
Jim Smallwood

Shift 1st

Pump calibrated 4-12.

VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)
1101	23	1126	23	1151	23	1176	23
1102	23	1127	23	1152	23	1177	23
1103	23	1128	23	1153	23	1178	23
1104	23	1129	23	1154	23	1179	23
1105	23	1130	23	1155	23	1180	23
1106	23	1131	23	1156	23	1181	23
1107	23	1132	23	1157	23	1182	23
1108	23	1133	23	1158	23	1183	23
1109	23	1134	23	1159	23	1184	23
1110	23	1135	23	1160	23	1185	23
1111	23	1136	23	1161	23	1186	23
1112	23	1137	23	1162	23	1187	23
1113	23	1138	23	1163	23	1188	23
1114	23	1139	23 ~~23~~ FHF 8/21	1164	23	1189	23
1115	23	1140	23	1165	23	1190	23
1116	23	1141	23	1166	23	1191	23
1117	23	1142	23	1167	23	1192	23
1118	23	1143	23	1168	23	1193	23
1119	23	1144	23	1169	23	1194	
1120	23	1145	23	1170	23	1195	
1121	23	1146	23	1171	23	1196	
1122	23	1147	23	1172	23	1197	
1123	23	1148	23	1173	23	1198	
1124	23	1149	23	1174	23	1199	
1125	23	1150	23	1175	23	1200	

VOID FHF 8/22

1201-1298

High Mercury Solution
Reagent # 2101-60-22
Vial prep 8/20/08 FHF / RWH

MERCURY NITRATE SPIKE VIALS - Target Volume: ~~23~~ 22 milliliters RWH 8-22-08

Date 8/22/08

Personnel Trey Formby
Ray Hasty

Shift 1ST

Pump calibrated Yes

VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)	VIAL #	VOLUME (ml)
1201	22	1226	22	1251	22	1276	22
1202	22	1227	22	1252	22	1277	22
1203	22	1228	22	1253	22	1278	22
1204	22	1229	22	1254	22	1279	22
1205	22	1230	22	1255	22	1280	22
1206	22	1231	22	1256	22	1281	22
1207	22	1232	22	1257	22	1282	22
1208	22	1233	22	1258	22	1283	22
1209	22	1234	22	1259	22	1284	22
1210	22	1235	22	1260	22	1285	22
1211	22	1236	22	1261	22	1286	22
1212	22	1237	22	1262	22	1287	22
1213	22	1238	22	1263	22	1288	22
1214	22	1239	22	1264	22	1289	22
1215	22	1240	22	1265	22	1290	22
1216	22	1241	22	1266	22	1291	22
1217	22	1242	22	1267	22	1292	22
1218	22	1243	22	1268	22	1293	22
1219	22	1244	22	1269	22	1294	22
1220	22	1245	22	1270	22	1295	22
1221	22	1246	22	1271	22	1296	22
1222	22	1247	22	1272	22	1297	22
1223	22	1248	22	1273	22	1298	22
1224	22	1249	22	1274	22	1299	
1225	22	1250	22	1275	22	1300	

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/11/08

Incinerator No. 2

Test Run 1

Operator Blake Peterson

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-172	80	141	346	20080801-145	75	124	320
171	64	144	371	144	69	126	310
168	81	146	368	140	82	125	307
164	79	140	360	143	66	236	326
167	73	150	344	139	60	232	321
163	77	147	369	142	55	235	358
166	72	142	345	138	89	234	317
162	74	134	347	136	58	231	298
165	62	145	374	135	54	228	294
160	63	143	352	134	51	224	297
161	59	139	330	141	88	221	323
159	78	138	341	137	52	225	314
158	94	137	304	133	50	226	313
157	90	136	301	132	53	233	324
156	34	133	305	131	57	227	288
152	87	128	303	130	49	219	300
155	93	132	318	128	38	229	285
151	83	131	319	124	47	230	311
154	67	127	325	127	39	223	308
148	71	135	284	123	36	217	286
153	61	130	299	126	45	215	296
150	68	129	316	122	35	216	309
147	85	121	306	129	43	222	290
146	95	123	328	125	32	220	315
149	56	122	322	121	19	218	287

DART

TEST START

AMP*

16

*327-Mer

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/11/08

Incinerator No. 2 Test Run 1 Operator Blake Peterson

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-300	44	213	292	20080801-273	3	185	447
297	41	212	289	275	1	190	464
294	65	209	295	272	42	192	437
291	28	210	312	270	15	189	451
299	84	207	291	274	22	183	452
296	24	214	302	269	13	188	459
293	12	205	293	271	7	181	467
298	48	204	424	267	2	182	465
290	27	206	445	266	26	179	466
295	37	211	443	268	10	178	438
292	17	202	446	265	8	186	456
289	16	208	442	264	9	180	458
288	31	203	461	263	4	293	457
285	30	201	462	261	21	292	453
282	25	199	448	260	20	294	460
287	40	200	470	258	785	291	425
279	29	194	435	257	768	286	444
284	14	198	463	255	767	284	426
281	18	195	449	254	766	289	427
278	6	197	432	262	761	288	455
286	33	196	450	259	772	287	436
283	26	191	472				
280	5	193	471				
277	23	187	468				
276	11	184	469				

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SAMP*

SAMP**

TEST COMPLETE OK

** 455 Mer

*439 - Merc

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/12/08

Incinerator No. 2

Test Run 2

Operator Wells, Watford

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-232	776	285	428	20080801-212	747	264	395
236	773	290	429	207	789	259	388
234	762	282	430	216	741	260	399
220	792	280	454	211	732	257	387
235	764	283	441	215	734	258	396
240	763	281	433	210	733	254	408
230	793	278	431	206	746	249	397
239	769	279	440	214	800	255	411
234	765	273	423	209	738	250	409
224	775	272	422	205	771	253	410
238	778	276	414	213	709	244	386
219	783	271	403	196	715	251	413
223	798	275	420	195	791	252	407
229	777	270	415	200	795	248	385
228	799	274	404	199	747	246	412
233	788	277	401	204	748	243	384
237	786	265	400	203	797	242	416
227	782	262	405	198	757	240	418
218	770	267	406	194	731	247	398
222	781	266	390	202	759	237	421
226	774	256	391	197	780	239	417
217	756	268	392	193	743	241	378
221	787	269	389	201	779	245	419
225	784	261	402	184	752	238	383
208	721	263	394	188	745	593	382

<START> TEST START OK

<SAMP>

* 393 - MDC

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/12/08

Incinerator No. 2 Test Run 2 Operator Miller, Mel

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #	
20080801-192	750	597	381	20080801-350	737	577	536	
191	755	599	379	349	724	573	531	
187	735	591	380	339	725	569	530	
183	794	590	564	354	730	567	528	
182	713	595	562	353	701	574	541	
186	796	598	566	352	723	566	546	
190	742	600	565	357	736	564	529	
181	726	588	561	360	706	570	557	<SAMP
185	727	594	555	356	711	571	556	
189	790	580	551	338	705	562	537	
250	753	586	550	355	716	568	538	
251	751	596	560	337	702	565	527	
252	754	592	563	359	707	561	522	
256	704	579	540	358	708	563	521	
248	758	587	552	348	710	559	523	
249	749	582	532	342	718	558	543	
253	744	578	549	341	720	557	542	
247	722	589	553	340	719	556	520	
244	740	585	548	345	717	560	519	
245	729	584	554	344	714	584	545	<SAMP
246	728	581	558	343	601	555	525	← TEST COMPLETED
241	712	576	547					
242	739	575	533					
243	760	583	534					
351	703	572	535					

16

** 544 - MDL

* 559 - MDL

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/13/08

Incinerator No. 2

Test Run 3

Operator Mueller P. DeMaud

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-420	686	552	526	20080801-386	670	523	475
417	698	551	539	394	666	522	479
412	687	547	524	391	646	528	488
413	680	549	516	388	678	527	491
409	681	553	518	387	679	524	487
410	697	548	509	378	657	525	501
408	692	550	515	375	651	526	484
405	688	546	510	377	650	521	485
402	695	544	513	374	663	520	483
407	696	541	508	376	694	519	492
404	684	543	494	373	661	512	474
401	691	542	514	379	631	517	480
406	685	545	517	380	675	515	473
403	689	540	512	381	673	511	481
400	667	539	503	384	668	516	489
399	677	534	506	383	665	518	477
398	694	532	496	382	637	506	476
397	690	538	495	372	664	514	502
396	676	537	500	369	636	513	504
393	660	536	507	366	693	510	482
395	682	530	511	371	640	504	486
390	699	533	498	368	644	508	499
392	671	535	505	370	672	507	478
389	662	531	497	365	659	509	652
385	683	529	490	363	622	500	660

<SAMP*

1~ TEST START

15

*MBC-493

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/13/08

Incinerator No. 2 Test Run 3 Operator Weller

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-362	653	505	659	20080801-101	614	486	622
367	648	498	649	98	617	480	638
364	639	503	653	97	609	476	634
361	669	499	654	96	700	469	613
120	643	501	658	115	608	471	615
100	654	494	655	112	630	475	656
119	619	497	643	95	615	470	620
88	627	502	644	91	626	474	633
92	649	485	645	87	632	468	631
104	645	489	646	94	611	473	632
118	647	493	647	90	612	466	640
114	625	488	624	93	603	463	619
117	629	490	648	89	602	472	614
113	658	496	625	86	607	467	616
109	655	491	626	85	628	465	639
110	624	492	623	84	604	464	637
108	642	495	627	80	616	462	630**
111	641	487	650	83	605	461	621
116	656	484	641				
107	652	482	635				
103	623	477	651				
106	633	483	636				
99	620	479	628				
105	621	481	629				
102	618	478	657				

SAMP* >

<SAMP**

← TEST COMPLETE OK

** 630- Merc

* 642- Merc

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/5/08

Incinerator No. 3 Test Run 1 Operator: [illegible], PDeHaul, E. Mitchell

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801 - 664	300	35	92	20080801-696	278	95	82
668	277	39	84	694	276	51	81
669	289	29	85	693	275	50	47
665	288	36	86	692	272	98	93
670	285	38	72	688	266	101	67
671	299	41	73	689	265	96	50
666	273	42	91	686	260	99	66
667	287	37	83	687	258	102	51
663	284	44	69	690	262	55	65
662	281	40	68	691	274	100	64
672	283	45	95	708	263	53	63
661	286	87	70	702	259	54	71
682	270	86	87	699	249	94	52
679	282	88	75	701	254	104	62
TEST START → 683	298	43	53	703	279	103	61
680	297	90	89	704	255	56	54
677	291	47	88	697	256	107	60
678	292	49	74	707	267	105	55
674	296	92	94	706	230	106	56
684	295	93	76	698	257	113	57
681	280	89	77	705	245	111	58
673	290	46	78	700	253	114	59
675	294	48	79	718	248	110	37
676	293	97	80	714	264	109	38
695	269	91	90	715	251	119	40

SAMPLED WASTE CHARGE PHYSICALLY REMOVED FROM FEED CONVEYOR (Applies only to 1st sample charge)

ENSR - 48 Max
IEPA - 49 Max

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/5/08

Incinerator No. 3 Test Run 1 Operator Miller P.Pethard, E.Mitchell

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-709	238	120	45	20080801-461	225	17	7
719	221	117	46	458	226	19	11
720	252	115	42	466	239	57	1
716	243	112	39	463	201	20	20
717	246	118	29	462	227	21	9
710	232	116	30	459	247	22	10
712	250	108	33	456	237	61	41
480	394	2	31	453	231	62	12
475	398	11	28	448	224	63	13
474	386	16	27	447	216	23	14
471	380	12	34	455	222	60	21
479	389	14	26	452	233	64	17
476	399	4	36	449	219	65	19
473	382	3	43	446	375	25	18
470	400	13	32	454	214	24	16
478	370	6	22	451	367	26	15
477	390	15	4	450	217	27	187
472	242	5	25	445	212	67	183
469	240	8	5	442	235	28	171
468	381	10	23	439	218	66	172
465	268	18	44	436	208	30	182
460	241	7	35	443	220	68	188
457	261	1	6	440	209	70	184
467	223	58	2	437	204	71	185
464	234	9	8	435	211	69	174

SAMPLE >

SAMPLES

ENDR 24 hr

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/5/08

Incinerator No. 3

Test Run 1

Operator MWB

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-444	228	72	173				
AMP > 441	215	31	~~176~~ 178				
434	213	32	175				
438	206	73	159				
433	207	33	158				
430	229	75	177				
427	360	77	181				
TEST END → 426	388	74	165				

Chgr # 441

ENSR 176

IEPA 167

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/6/08

Incinerator No. 3

Test Run 2

Operator [illegible]

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-421	361	34	154	20080801-42	345	686	169
428	366	80	163	47	396	683	166
431	363	76	148	38	359	685	156
425	365	78	164	43	347	684	151
422	359	79	149	39	324	682	125 SAMP*
423	358	85	150	48	335	680	124
424	355	82	168	40	351	677	126
429	373	84	152	44	364	679	127
432	358	83	147	29	387	675	135
49	379	81	170	25	352	678	112
53	393	699	189	33	391	674	138
ART > 57	395	700	179	31	376	676	141
58	392	694	180	34	346	669	117
54	377	689	146	26	397	670	113
50	372	696	145	30	354	673	118
55	368	698	162	35	344	671	139
59	374	687	133	27	321	672	131
60	378	692	144	36	328	664	140
51	384	693	161	32	330	668	115
52	383	688	143	28	349	666	137
56	356	695	157	21	322	658	132
41	337	697	160	17	340	660	111
45	348	691	186	13	319	663	114
37	338	690	155	22	342	665	116
46	343	681	153	18	325	657	105

14

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*[illegible]

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/06/08

Incinerator No. 3

Test Run 2

Operator Miller E. Mitchell G. Demetrulias

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801 - 14	333	662	96	20080801-539	304	637	278
23	320	667	98	530	306	635	282
19	313	659	103	538	312	632	272
15	332	661	102	535	316	638	258
16	371	654	134	529	350	628	257
24	331	646	106	534	210	629	260
20	369	651	107	525	307	634	240
9	329	649	108	526	205	631	238
8	362	650	119	520	202	626	239
10	336	647	110	519	327	625	236
7	311	653	121	524	203	622	259
3	317	655	97	521	353	627	271
1	326	656	104	518	315	624	270
6	341	645	120	527	310	621	237
2	305	648	100	528	198	620	274
11	303	642	99	523	191	623	261
4	309	641	109	522	197	616	255
5	318	633	130	517	185	618	235
12	308	644	142	513	184	609	262
540	314	652	101	508	199	619	256
537	301	640	122	514	180	617	~~273~~ 248
532	302	630	129	507	177	612	265
531	334	636	128	~~515~~	~~189~~	~~608~~	~~266~~
536	323	639	280	~~512~~	~~192~~	~~614~~	~~267~~
533	357	643	283	~~509~~	~~174~~	615	217

SAMP*

<SAMP**

END OF TEST OR

** 273 MERC

* 123 - MERC

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/7/08

Incinerator No. 3 Test Run 3

Operator Miller, E. Mitchell GDEMETRULIAS

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-516	174	608	244	20080801-484	163	332	212
511	192	604	245	488	147	345	224
510	190	615	246	491	158	342	213
505	182	614	253	492	141	341	193
512	193	607	252	487	148	330	211
509	187	611	254	485	154	340	192
515	188	610	277	483	195	337	191
506	181	613	264	651	156	339	214
501	194	603	269	652	129	335	197
502	178	605	243	657	155	336	226
START > 498	159	606	276	660	151	334	215
START TEST * 495	186	601	241	650	160	328	216
500	196	602	267	653	142	329	200
503	189	354	242	656	150	324	227
497	179	348	263	654	143	333	217
494	175	351	249	649	164	325	201
499	144	353	281	655	146	327	218
504	152	344	275	659	139	322	234
496	170	352	266	642	130	326	202
493	165	347	279	639	125	318	225
481	173	346	250	645	113	323	219
486	168	350	247	648	120	331	220
489	166	338	251	638	110	321	204
490	171	349	268	641	137	316	198
SAMP * 482	127	343	231	644	140	315	228

* 222 Mar

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/7/08

Incinerator No. 3 Test Run 3

Operator Wylie, E. Mitchell
G. Demetriou/AS

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-658	122	319	194	20080801-623	109	168	335
647	103	314	196	615	105	175	353
637	145	317	195	616	126	170	376
640	112	312	199	619	114	174	354
643	162	311	203	622	116	176	375
646	169	320	232	603	123	163	377
625	149	309	229	606	176	171	359
630	153	313	230	609	107	162	373
633	131	307	210	612	101	169	361
636	121	304	223	602	111	164	372
629	136	310	222	605	117	166	342
632	118	305	221	608	167	173	340
626	138	306	206	611	102	165	343
627	124	308	190	601	108	161	363
628	132	303	209	604	172	159	364
631	135	298	208	607	183	153	362
635	134	296	207	610	104	160	366
634	161	297	339	177	100	157	365
613	128	299	338	173	70	156	367
618	133	301	337	169	99	155	351
621	157	302	370	178	98	158	350
614	200	300	355	174	92	154	331
624	115	172	356	170	96	148	329
617	119	167	357	179	97	152	349
620	106	177	336	180	86	151	348

AMP*>

* 205 - Misc

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/7/08

Incinerator No. 3 Test Run 3

Operator M Miller E. Motch II
G. Dermentzoglou

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
SAMP* 20080801-175	91	151	334				
TEST END * 176	76	149	333				

*330-Misc

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/21/08

Incinerator No. 4

Test Run #1 DK

Operator Mueller Ed Lasch

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-970	909	1007	797	20080801-927	1111	1097	807
960	907	1010	830	936	1116	1095	823
957	911	1011	816	933	1162	1088	809
954	905	1019	828	930	1109	1093	805
951	901	1003	833	935	1114	1090	806
959	915	1008	827	932	1171	1087	802
956	910	1006	811	929	1163	1083	801
953	908	999	836	926	1157	1092	798
950	936	1001	834	934	1164	1086	800
958	903	1000	839	925	1106	1091	818
955	909	1005	831	928	1177	1089	820
949	913	1002	835	931	1159	1085	796
952	916	997	815	924	1117	1082	795
948	922	995	810	921	1191	1084	804
945	926	998	812	918	1166	1080	803
942	949	992	799	915	1161	1073	813
939	928	993	837	923	1113	1081	962
947	902	991	832	920	1195	1079	963
944	906	996	814	917	1178	1074	966
941	965	994	825	914	1176	1077	959
938	925	1099	826	922	1115	1069	964
946	918	1100	829	919	1175	1075	950
943	937	1094	822	913	~~1076~~ 1174	1076	955
940	1105	1098	808	916	1173	1072	967
937	1112	1096	821	912	1110	1078	968

START > DK 25

SAMP >

18

* 824 - Merc

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/21/08

Incinerator No. 4

Test Run 21 DK

Operator [illegible], EQ JASch

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-909	1167	1070	969	20080801-1121	1190	1446	952
906	1172	1071	970	1122	1118	1444	953
START> 903 2:37	1160	1066	944	1123	1189	1442	954
901	1107	1068	960	1124	1186	1441	948
905	1169	1065	961	1125	1150	1438	930
908	1170	1061	958	1126	1197	1443	928
911	1180	1067	956	1128	1184	1437	923
SAMP* 910	1147	1063	934 ~~965~~	1127	1179	1439	924
907	1183	1064	947	1129	1158	1435	914
904	1141	1062	945	1130	1194	1436	911
902	1198	1059	940	1110	1193	1428	913
1131	1149	1060	936	1107	1151	1433	893
1132	1153	1058	935	1108	1152	1425	922
1133	1168	1055	957	1111	1196	1431	905
1134	1188	1054	946	1112	1155	1432	897
1135	1187	1057	933	1113	1124	1434	912
1136	1156	1051	938	1109	1138	1440	931 ~~904~~ <SAMP** TEST END 15:37 DK
1137	1121	1053	949				
1138	1135	1056	941				
1142	1165	1052	942				
1141	1185	1450	939				
1140	1130	1448	943				
1139	1145	1445	932				
1119	1182	1449	937				
1120	1181	1447	951				

22

Nbc - 904**
Mrr - 965*

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/22/08

Incinerator No. 4

Test Run 2 DK

Operator

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-1193	1122	1430	895	1171	1127	1404	919
1194	1133	1419	925	1175	1108	1400	907
1197	1134	1422	929	1174	1123	1402	900
1200	1136	1429	926	1167	1120	1401	896
1198	1140	1418	920	1178	1103	1499	910
1195	1139	1427	917	1177	1192	1498	892
1192	1142	1416	887	1176	898	1493	1187
1199	1137	1423	921	1173	899	1495	1188
1196	1143	1424	915	1170	890	1496	1178
1191	1144	1426	916	1166	896	1494	1192
1188	1131	1420	891	1165	900	1489	1181
1185	1146	1415	888	1163	894	1497	1191
1182	1126	1414	918	1162	893	1491	1172
1181	1132	1412	890	1160	872	1488	1190
1189	1200	1421	896	1159	855	1487	1170
1190	1125	1417	889	1155	883	1484	1189
1186	1148	1411	927	1156	879	1492	1182
1187	1104	1407	894	1164	876	1490	1193
1183	1128	1409	898	1161	897	1485	1169
1184	1199	1408	909	1158	882	1486	1186
1180	1102	1413	908	1157	874	1483	1168
1179	1154	1406	899	1145	891	1481	1167
1169	1101	1405	903	1144	878	1479	1183
1168	1119	1410	906	1148	871	1478	1184
1172	1129	1403	902	1147	888	1480	1166

10:50 START DK

SAMP

12:01

19

34.8%

65.2%

* Mec- 909

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/22/08

Incinerator No. 4

Test Run B2 DX

Operator [illegible]

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-1151	884	1473	1179	20080801-880	843	1453	1148
1150	868	1476	1185	879	856	1454	1173
1154	887	1482	1156	884	853	1451	1161
1153	842	1471	1165	877	850	1206	1129
1152	885	1475	1152	876	859	1207	1131
1149	895	1477	1163	881	866	1203	1130
1146	880	1472	1150	878	846	1201	1139
1143	873	1468	~~1162~~ 1153	875	875	1202	1135
900	862	1464	1157	865	833	1204	1127
899	886	1467	1158	868	836	1205	1132
898	881	1463	1160	871	839	1208	1118
894	869	1474	1159	864	835	1209	1123
893	892	1469	1154	867	857	1210	1117
895	840	1470	1177	874	845	1211	1114
890	822	1466	1180	863	854	1220	~~1138~~ ~~1113~~
892	870	1460	1155				
888	865	1462	1174				
887	844	1459	1151				
891	889	1465	1149				
896	860	1458	1171				
897	867	1461	1164				
886	861	1452	1146				
885	838	1455	1176				
883	847	1456	1147				
882	877	1457	1175				

1113 - Merc***

1162 - Merc*

SOLID FEED CHARGES - Target Rate: 40 charges/hour

Date 8/23/08

Incinerator No. 4

Test Run 43 DK

Operator Micha Bac

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-88	864	1394	1112	20080801-1102	818	1368	1141
873	852	1399	1115	1101	824	1369	1140
866	863	1396	1144	1095	826	1370	1125
872	801	1393	1133	1099	827	1358	1111
869	816	1392	1137	1100	841	1376	1105
862	830	1391	1142	1106	831	1377	1121
859	802	1387	1116	1105	823	1375	1295
856	821	1383	1102	1103	819	1373	1296
853	829	1389	1101	1104	828	1360	1298
855	815	1398	1136	1094	811	1366	1297
852	808	1395	1107	1091	858	1363	1294
861	809	1386	1110	1088	832	1372	1293
858	807	1380	1106	1083	848	1362	1281
860	805	1397	1119	1093	851	1364	1280
857	806	1385	1143	1090	837	1365	1287
854	812	1390	1108	1087	1068	1371	1292
851	804	1378	1104	1084	1100	1359	1291
1114	803	1381	~~1124~~ 1145	1092	1095	1216	1286
1118	810	1382	1122	1085	1089	1218	1288
1115	813	1384	1103	1089	1075	1217	1289
1117	814	1388	1134	1086	1069	1226	1290
1116	820	1367	1126	850	1062	1213	1264
1098	817	1379	1128	845	1091	1222	1283
1096	834	1361	1120	844	1076	1229	1273
1097	825	1374	1109	839	1090	1221	1285

19

81 36 %

55 64 %

*1124 - Man

SOLID FEED CHARGES - Target Rate: 40 charges/hour Date 8/23/08

Incinerator No. 4 Test Run #3 DK Operator Miller, Bruce

4

ID # - CHARGE #	LEAD #	HEX #	MERCURY #	ID # - CHARGE #	LEAD #	HEX #	MERCURY #
20080801-840	1080	125	1265	20080801-819	1066	1352	1257
843	1085	1227	~~1284~~	822	1070	1350	1276
846	1081	1219	1279	825	1043	1357	1249
849	1098	1200	1266	824	1058	1355	1270
847	1071	1223	1272	821	1078	1351	1278
SAMP> 842	1096	1224	~~1274~~ 1263	818	1074	1356	1252
841	1093	1225	1275	815	1063	1349	1250
848	1087	1230	1262	814	1057	1348	1238
838	1094	1228	1261	811	1073	1347	1241
833	1099	1232	1260	808	1055	1346	1230
832	1061	1214	1259	805	1047	1344	1229
829	1088	1231	1258	813	1049	1342	~~1239~~ 1242 <SAMP ** TEST END. DK
837	1092	1235	1256				
834	1086	1237	1267				
831	1084	1233	1282				
828	1059	1234	1247				
836	1097	1243	1268				
835	1083	1236	1254				
827	1065	1238	1248				
830	1064	1240	1269				
826	1079	1239	1277				
823	1077	1241	1257				
820	1082	1242	1253				
817	1067	1353	1271				
816	1060	1354	1255				

29

** 1239

* 1274 - Merc

Preparing RDF Laboratory Samples

For Analysis

1 Scope

1.1 The test method covers the preparation of refuse-derived fuel, RDF laboratory samples for analysis, the laboratory samples having previously obtained from representative RDF samples.

2 Summary of Method

2.1 Samples moisture is reduced by either air-drying to allow mechanical reduction of sample without significant change to the sample's furl properties or the moisture is removed by drying in a mechanical draft oven capable of maintaining a controlled temperature in the range from 95 - 105^0 C. The sample particle size is then reduced to a form suitable for analysis.

2.2 If the air-drying procedure is used, it is important to measure and record the air dry moisture and the residual moisture in order to calculate the total moisture of the sample.

2.3 If the sample is bone-dried, the total moisture must be measured and recorded.

2.4 In either case, the sample must have a true moisture reading in order to calculate values on both and as received and dry basis.

NOTE: Bone drying is normally used unless otherwise requested by the client.

3 Apparatus and Materials

3.1 Air-Drying Oven

3.1.1 Drying oven - A large chamber mechanical draft oven capable of maintaining a controlled temperature in a range from 25 - 40^0 C. Air changes should be at the rate of 1 to 4 changes per minute. Air flow should be baffled to prevent samples from being blown out of the sample containers.

3.2 Bone-Drying Oven

3.2.1 Drying oven - A large chamber mechanical draft oven capable of maintaining a controlled temperature in a range from 95 - 110^0 C. Air changes should be at the rate of 1 to 4 changes per minute.

Air flow should be baffled to prevent samples from being blown out of the sample container.

3.3 Drying Pan - A noncorroding pan or mesh basket to be used for holding the sample during the drying process.

3.4 Balance - A balance of sufficient capacity to weigh the sample and container. The balance should have a sensitivity of 0.5 g.

3.5 Sample Reduction

3.5.1 A mill operating on the principle of cutting or shearing action will be used for sample particle size reduction. It will have the capability to regulate the particle size of the final product by means of either interchangeable screens or mill adjustments. The mill will be enclosed and should generate a minimum amount of heat during the milling process. The final product will pass through a 0.5 mm or smaller screen into a receiver integral with the mill.

3.5.2 Analysis Sample Containers - Heavy, vapor impervious bags, properly sealed; or non-corroding cans, glass jars, or plastic bottles with airtight sealing covers, may be used to store RDF samples for analysis. Containers should be checked for suitability by measuring weight loss or gain of the sample and container stored for one (1) week under ambient laboratory conditions. Weight loss or gain should be less than 0.5 % of the sample weight stored in the container.

3.5.3 Shredder - A laboratory shredder capable of shredding or cutting larger particle sizes of solid waste. The final product will pass through a two (2) inch or smaller screen into a receiver integral with the shredder.

4 Reagents

4.1 Because of the nature of solid wastes; shredding, grinding and/or pulverizing may be difficult at ambient temperatures. To improve the process of particle size reduction use ice, dry ice, or liquid nitrogen can be used to cool the sample during the grinding process.

NOTE: It is important that any moisture added to the sample due to condensation when using the above cooling agents be removed prior to analysis.

5 Sampling (When the Laboratory does the Sampling)

5.1 RDF products are frequently nonhomogeneous. For this reason, significant

care should be exercised to obtain a representative sample from the RDF lot to be characterized.

5.2 The sampling method for this procedure should be based on the agreement between the client and the laboratory.

5.3 For this procedure the laboratory sample size will normally not exceed 2 kg with some variation possible depending on the laboratory equipment available.

5.4 Due to the heterogeneous nature of RDF, dividing a laboratory sample to a very small size, analysis sample may result in nonrepresentative results. Since milling operations mix the sample as well as reduce particle size, laboratory samples should not be divided before the initial preparation steps have been completed.

6 Procedure

6.1 Weigh the entire laboratory sample into a tared pan. Sample depth in the drying pan should be not greater than 100 mm (4 inches) and any lumps of sample should be broken up. Use more than one pan if necessary. If a very fine mesh-type pan is used, size the mesh such that the sample will not be lost.

6.2 Air-Drying

6.2.1 If samples are to be air dried, air dry samples at 10 - 15^0 C above ambient, but not greater than 40^0 C until the weight loss is less than 0.1 % of the sample weight per hour.

6.3 Bone-Drying

6.3.1 If the samples are to be bone dried, dry the samples at 107 $\pm$ 3^0 C until the weight loss is less than 0.1 % of the sample weight per hour. To speed the drying process, the samples may be carefully stirred avoiding loss of sample.

6.4 Record the air-dry loss or total moisture respective of the method used in 6.2 or 6.3.

6.5 Separate and weigh the millables and nonmillables for classification and use, or analysis, if necessary. Calculate the millables and nonmillables as described in Section 7.2.

6.6 If the sample was air-dried (6.2), dry a representative portion of the air-dried millables fraction at 107 $\pm$ 3^0 C to constant weight as follows:

6.6.1 Heat a clean, empty drying pan at a minimum temperature of 107 $\pm$ 3^0 C

for at least one (1) hour. When cooled, transfer to a desiccator and tare weigh to an accuracy of 0.5 g.

6.6.2 Place the laboratory sample of RDF in the drying pan. Weigh the pan and the sample to an accuracy of 0.5 g.

6.6.3 Place the pan and the sample in the drying oven at 107 $\pm$ 3^0 C for a minimum of one (1) hour.

6.6.4 Remove pan from the oven, desiccate to cool and weigh to the nearest 0.5 g.

6.6.5 Place back into the oven for one (1) hour at 107 $\pm$ 3^0 C.

6.6.6 Remove and place in desiccator, cool, and reweigh.

6.6.7 Repeat steps 6.6.5 and 6.6.6 until the weight loss is less than 0.1 % / hour.

6.6.8 Calculate % RM on millable portion of the sample as described in Section 7.3.

6.7 If the sample was air-dried (6.2), dry the nonmillables at 107 $\pm$ 3^0 C to constant weight. Calculate the % RM on the nonmillables as described in Section 7.3.

6.8 If the sample was boned-dried steps 6.6 need not be done. The total moisture was determined in Section 6.3 and 6.4.

6.9 Reduce the air-dried or bone-dried millables to a smaller particle size using a cutting or shearing type shredder or mill. The final product should pass though a 0.5 mm or smaller screen. Depending on the specific RDF product, this step may involve more than one stage or reduction, that is, passing the sample through a shredder or mill with larger size screens first and then milling to pass the final screen. For many samples, dry ice or liquid nitrogen may be used to freeze the sample prior to milling.

6.10 The mixed air-dried or bone-dried, finely ground laboratory sample can be further subdivided to an analysis-size sample. Retain a minimum of 50 g as the analysis sample. Any division method used will insure that the retained analysis sample is representative of the original laboratory sample.

6.11 Keep the analysis sample in a labeled sample container having a moisture-tight seal.

6.12 If the samples were air-dried, determine the residual moisture on the millable portion of the sample.

7 Calculations

7.1 Calculate the air-dry moisture as follows:

$$ADL = [(W_b - Wa) / Wb] * 100$$

Where:

ADL = % air dry loss
Wb = weight of sample before air drying
Wa = weight of sample after air drying

7.2 Calculate the millables and the nonmillables of the sample:

$$M = Wm / Ws * 100$$

Where:

M = % millables
Wm = weight of the millables
Ws = weight of the samples (millables and nonmillables)

$$NM = Wnm / Ws * 100$$

Where:

NM = % nonmillables
Wnm = weight of the nonmillables
Ws = weight of the sample

NOTE: Nonmillables usually are noncombustible and can be used in contributing to the ash value or noncombustible value portion of the sample.

7.3 Calculation of residual moistures:

$$RM - \frac{\text{wt. Of AD sample after drying}}{\text{wt. Of AD sample before drying}} * 100$$

7.4 If the samples were air-dried and residual moisture done on either the millables, and / or nonmillables, calculate the total moisture as follows:

$$TM = AD + \left[\left(\frac{100 - AD}{100} \right) \left(RM \right) \right]$$

Where:

TM = Total Moisture, %
AD = Air Dry loss, %
RM = Residual Mositure, %

7.5 References

7.5.1 ASTM E829

Veolia Environmental Services
Trade Waste Incineration

BOOK NO. 2101

Metals- Standard Preparation

Concentration(ug/ml) / Name	Conc / Starting Material	Trace Number	Amount	Final Volume(ml)	Prep Date	Exp. Date	Analyst
1 0.02 ug/ml Hg	0.2 ug/ml Hg	2101-58-29	5 ml	50 ml	7/30/08	9/13/08	KS
2	Conc HNO_3	2032-44-29	3 ml				
3	Conc HCL	2032-32-6	1 ml				
4	D. H_2O		SQ				
5 High Conc Hg Solution	98% Mercury Nitrate hydrate	2184-3-11 2184-3-12 2184-2-30	121.004 g	7 L	8/5/08	—	FHF
6 For MACT Testing	Nitric Acid	2032-44-28	800 ml			—	
7	DI H_2O	—	SQ			—	
8 ICP ICV STD.	5000 ug/ml As, Cd, Cr, Pb, 2000 ug/ml Be	2032-49-20	50 ul / 50	100 ml	8-6-08	8-6-08	JS
9	Conc HNO_3	2032-44-29	6 ml's				
10	Conc ACL	2032-37-6	2 ml's				
11	DI H_2O	—	SQ				
12 ICP ICV STD	Same As Lines	8 → 11	—	ml's	8-8-08	8-8-08	JS
13 High Conc Hg Solution	98% Mercury Nitrate hydrate	2184-3-13	43.004 g	2.5 L	8-11-08	—	FHF
14 BATCH 2 For	Nitric Acid	2032-44-28	250 ml			—	
15 MACT TESTING	D. H_2O	—	SQ			—	
16 ICP ICV Std	5000 ug/ml As Cd Cr, Pb 2000 ug/ml Be	2032-49-20	50 ul	100 ml	8/13/08	8/13/08	KS
17	Conc Nitric KS 8/13/08	2032-44-29 ~~2032-49-20~~	6 ml				
18	Conc HCL KS 8/13/08	2032-36-6 ~~2032-44-28~~	2 ml				
19	D. H_2O	—	SQ				
20 ICP ICV Std	same as Lines 16 - 19	KS	8/13/08	8/13/08	8/13/08	KS	
21 ICP ICV STD	Same As	Lines 16-19	—	100 ml's	8-21-08	8-21-08	JS
22 High Conc Hg Sol	98% Mercury Nitrate hydrate	2184-3-14	43.001 g	2.5 L	8-21-08	—	FHF
23 Batch 3	Nitric Acid	2032-44-28	250 ml			—	
24 For MACT Test	D. H_2O	—	SQ			—	
25 High Conc Hg Sol	98% mercury II Nitrate hydrate	2184-3-18	43.00 g			—	
26 BATCH 4	Nitric Acid	2032-44-28	250 ml			—	
27 For MACT Test	D. H_2O	—	SQ			—	
28 ICP ICV STD	Same As Line	16-~~19~~ 18 8/25/08	—	100 ml's	8-22-08	8-22-08	JS
29 ICP ICV STD.	Same As Line	16-19	—	100 ml's	8-25-08	8-25-08	JS
30 ICP ICV STD	Same As Lines	16-19	—	100 ml's	8-28-08	8-28-08	JS

Reviewed By: Date:

Attachment 2

Electronic Message
March 8, 2010 – Dave Klarich, Veolia Environmental Services, LLC to
Chris Lambesis EPA

Re: Requested Information

David.Klarich to: Christopher Lambesis
Cc: Dennis.Warchol, Doug.Harris, Todd Ramaly

03/08/2010 05:01 PM

From: David.Klarich@veoliaes.com
To: Christopher Lambesis/R5/USEPA/US@EPA
Cc: Dennis.Warchol@veoliaes.com, Doug.Harris@veoliaes.com, Todd Ramaly/R5/USEPA/US@EPA

Chris,

I tried to contact you today by phone, but was unable to catch you in the office. Attached below is the "Metals Standard Preparation" lab sheet I believe you wanted for vials 1201 - 1298. If this is not what you were looking for, or there is any additional information that I can send you, please let me know.

Back in November, 2009, PSC sent PT072_02 (Preparing RDF Laboratory Samples) to me when I requested, via AECOM, their sample drying procedures for the Veolia waste samples. This was included in the package of information that I sent you in November. If you did not receive this procedure or you are looking for additional or different procedures, please let me know.

I will give you a call again tomorrow.

Dave

(See attached file: Stwiscanner10030815340.pdf)

Lambesis.Christopher@epamail.epa.gov

03/02/2010 05:00 PM

To: David.Klarich@veoliaes.com
cc: Dennis.Warchol@veoliaes.com, Doug.Harris@veoliaes.com, Ramaly.Todd@epamail.epa.gov
Subject: Re: Requested Information

Dave,
We are reviewing the spike documentation that you provided. The package is missing some information. Can you send the "Metals Standard Preparation" Veolia lab sheets for the mercury spike make up for vials 1201 - 1298 (prepared by Trey Formby and Ray Hasty). They will probably be found on or after page 60 of book 2101. Also, can you please send PSC Republic Laboratory's SOP for percent moisture analysis as applied to the waste samples from the 2008 test burns. Please call me if you have any questions.

Christopher Lambesis
Environmental Scientist
U.S EPA Region 5
Land and Chemicals Division
(312) 886-3583

From: David.Klarich@veoliaes.com

To: Christopher Lambesis/R5/USEPA/US@EPA

Cc: Charles Hall/R5/USEPA/US@EPA, Genevieve Damico/R5/USEPA/US@EPA, Todd Ramaly/R5/USEPA/US@EPA, Doug.Harris@veoliaes.com, Dennis.Warchol@veoliaes.com

Date: 11/19/2009 02:25 PM

Subject: Requested Information

Chris,

Wanted to let you know that the mercury spike information and the PSC procedure that you requested on the November 3 conference call is being mailed today. Sorry for the delay, but as Doug had mentioned during the call, I was out of the office for a period of time after the call. If you
have any questions on the documents or need additional information, please
contact me.

Dave

Metals- Standard Preparation

	Concentration(ug/ml) / Name	Conc / Starting Material	Trace Number	Amount	Final Volume(ml)	Prep Date	Exp. Date	Analyst
1	0.02 ug/ml Hg	0.2 ug/ml Hg	2101-58-29	5 ml	50 ml	7/30/08	9/13/08	KS
2		Conc HNO_3	2032-44-29	3 ml				
3		Conc HCL	2032-32-6	1 ml				
4		D. H_2O		SQ				
5	High Conc Hg Sol'n	98% Mercury Nitrate hydrate	Z184-3-11 Z184-3-12 Z184-3-20	121.004 g	7 L	8/5/08	—	FHF
6	For MACT Testing	Nitric Acid	2032-44-28	800 ml				
7		Di H_2O	—	SQ				
8	ICP ICV STD.	5000 ug/ml As, Cd, Cr, Pb, 2000 ug/ml Be	2032-49-20	50 ul / 50	100 ml	8-6-08	8-6-08	JS
9		Conc HNO_3	2032-44-29	6 ml's				
10		Conc HCL	2032-37-6	2 ml's				
11		DI H_2O	—	SQ				
12	ICP ICV STD	Same As Lin 9	8 → 11	—	100 ml	8-8-08	8-8-08	JS
13	High Conc Hg Solution	98% Mercury Nitrate hydrate	2184-3-13	43.004 g	2.5L	8-11-08	—	FHF
14	BATCH 2 For	Nitric Acid	2032-44-28	250 ml				
15	MACT TESTING	D. H_2O	—	SQ				
16	ICP ICV Std	5000 ug/ml As Cd Cr, Pb 2000 ug/ml Be	2032-49-20	50 ul	100 ml	8/13/08	8/13/08	KS
17		Conc Nitric 8/13/08 KS	~~2032-44-29~~ 2032-44-29	6 ml				
18		Conc HCL 9/13/08 KS	~~2032-32-6~~ 2032-36-6	2 ml				
19		D. H_2O	—	SQ				
20	ICP ICV Std	same as Lines 16-19	KS		8/13/08	8/13/08	8/13/08	KS
21	ICP ICV STD	SAME AS	LINES 16-19	—	100 ml's	8-21-08	8-21-08	JS
22	High Conc Hg Sol	98% mercury nitrate hydrate	2184-3-14	43.001 g	2.5 L	8-21-08	—	FHF
23	Batch 3	Nitric Acid	2032-44-28	250 ml				
24	For MACT Test	D. H_2O	—	SQ				
25	High Conc Hg Sol	98% mercury nitrate hydrate	2184-3-18	43.00 g				
26	BATCH 4	Nitric Acid	2032-44-28	250 ml				
27	For MACT Test	D. H_2O	—	SQ				
28	ICP ICV STD	SAME AS LINE	16-X 8/25/08	—	100 ml's	8-22-08	8-22-08	JS
29	ICP ICV STD.	SAME AS LINE 16-19		—	100 ml's	8-25-08	8-25-08	JS
30	ICP ICV STD	SAME AS LINES 16-19		—	100 ml's	8-28-08	8-28-08	JS

Reviewed By: Date:

Attachment 3

Calculated Spike Concentrations
Todd Ramaly, EPA

1 page Ex. 5 deliberative atty-client, WP, Ex. 7(a)

Attachment 4

March 26, 2010
Memorandum to File: Data Review of Veolia Trial Burn Reports October, 2008
Christopher Lambesis, EPA

2 pages Ex. 5 deliberative atty-client, WP, Ex. 7(a)

2 pages Ex. 5 deliberative atty-client, WP, Ex. 7(a)